EARLY CHILDHOOD CARIES

Background

> "Bleeding gums, impacted teeth, rotting teeth are routine matters in the children…Children get used to feeling the constant pain. They go to sleep with it. They go to school with it…The gradual attrition of accepted pain erodes energy and aspiration."[1]

Jonathan Kozol, in his epic *Savage Inequalities: Children in America's Schools*, states the situation that exists for some of our most vulnerable citizens - our children - with all too alarming precision. Very young children, pre-schoolers and some as young as six months old, are not immune from the scourge of poor oral health. Indeed Early Childhood Caries [ECC] is a national public health problem and a state-wide public health issue in Rhode Island.

Early Childhood Caries is rampant caries of the primary dentition of infants and toddlers caused by frequent and prolonged exposure to carbohydrates in the presence of a bacterial agent *Streptococcus Mutans*. Previously referred to as Nursing Bottle Caries, Baby Bottle Tooth Decay, and other variants of the terminology, ECC is believed to be primarily the result of a child going to bed with a bottle [containing cariogenic liquids] or drinking at will from a bottle during the day.

Nationally, a review of the literature indicates a widely differing prevalence of ECC, ranging from 1 percent to 38 percent in children 1-2 years of age and 5 percent to 56 percent in children 2-3 years of age.[2] A 1998 study estimates ECC affects 6 percent of children under 3 years of age.[3] As with far too many other conditions, ECC is not distributed evenly throughout the population; children from families with low incomes and some racial/ethnic minorities are estimated to be affected at higher rates.[4, 5] The social costs of ECC are enormous. Children with ECC weigh significantly less than orally healthy peers[6] and their risk for future dental caries is dramatically increased.[7] In addition to the obvious pain and suffering from infection, children with ECC may develop poor eating habits, speech problems and low self-esteem as well as being distracted in playing and learning activities.

The economic costs of ECC are equally out-sized. Treatment of ECC may require extensive restorative services, in many situations involving sedation or general anesthesia. The cost to treat a case of ECC is $1,000-$2,000 per child. Should general anesthesia be required, the cost can increase by as much as an additional $6,000.[8]

Need/Problem in Rhode Island

A 1999 study in Rhode Island found that 3 percent of children under the age of 5 years old lost a tooth due to causes other than trauma.[9] With cohorts of 12,500/births year in Rhode Island,[10] and assuming a moderate prevalence of 6 percent, one can conservatively

estimate the number of ECC cases in Rhode Island to number 2,600 children between the ages of 6-48 months old.

Given that children most affected with ECC are from families with low incomes and some racial/ethnic minorities, that these children have more oral problems and less access to care than the general population[11] and that there are only ten pediatric dentists practicing in Rhode Island,[12] it is highly unlikely that significant progress can be accomplished solely by treatment of existing disease. A complementary sustained interdisciplinary approach of education/prevention services is required in Rhode Island to arrest the current epidemic of ECC and prevent succeeding cohorts of children from succumbing to this dreadful condition.

Addressing the Issue in Rhode Island

A combination of education/prevention promotion services and treatment services is proposed as one potential solution to this public health issue.

- Education/prevention promotion services
  - Public education activity targeting future parents, current parents, and caregivers re: oral health consequences of bedtime bottle feeding, transition from bottle to cup at 6-12 months of age, healthful feeding practices, fluoride supplements as appropriate, oral hygiene, early identification of disease, and a visit to the dentist by 12 months of age.
    - PSAs, media, marketing, hotline
  - Professional education activity targeting primary care health providers [pediatricians, internists, family physicians, obstetricians, mid-level medical practitioners, and WIC nutritionists] re: anticipatory guidance, early identification of disease, fluoride supplements as appropriate, healthful feeding practices, snacking behaviors that promote good oral health, and referral to the dentist by 12 months of age.
    - Training meetings
  - Professional education activity targeting the practicing dental community [particularly general practice dentists and dental hygienists] re: appropriate clinical management of very young patients and new therapeutic modalities.
    - Training meetings

- Treatment services
  - Commitment from practicing dental community to address ECC as a priority
  - Commitment from commercial dental insurers to incentivize reimbursement for specific ECC services provided to 6-48 month old patients.
  - Commitment from Rhode Island Medicaid program to incentivize reimbursement for specific ECC services provided to 6-48 month old patients.

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[3] Erickson PR et al. Estimation of the caries related risk associated with infant formulas. *Journal of Pediatric Dentistry* 20:395-403.
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[5] Bruerd B, Jones C, Kjrise D. 1997. Preventing baby bottle tooth decay and early childhood caries among AI/AN infants and children. *The IHS Primary Care Provider* 23(3):37-39.
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[10] *2000 Rhode Island Kids Count Factbook*. Rhode Island KIDS COUNT. Providence, RI. 2000.
[11] Centers for Disease Control & Prevention, National Center for Health Statistics. *Dental services and oral health:United States 1989*. Hyattsville, MD.
[12] Personal communication. Rhode Island Board of Examiners in Dentistry.